

Serial No.: 09/889,364 Confirmation No.: 3769

Applicant: SAWDON, Christopher et al.

Atty. Ref.: 11836.0691.PCUS00

I. AMENDMENTS TO THE CLAIMS:

The listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

(Currently Amended) An electrically conductive invert emulsion wellbore fluid 1. comprising:

i) from about 0.2% to about 10% by volume of carbon black particles, and

ii) one or more emulsifying surfactant(s) selected from the group consisting of: nonionic emulsifiers of Hydrophilic-Lipophilic Balance (HLB) less than about 12, and anionic surfactants wherein the counter-ion is any of alkali metal, ammonium, or hydrogen

ions, and

wherein the wellbore fluid is substantially free of polyvalent metal cations and wherein

the wellbore fluid has conductivity of at least $10^4 \,\mu\text{S/m}$.

2. (Original) A wellbore fluid according to Claim 1 wherein the carbon black exhibits a

specific surface area of at least 500 m²/g, and preferably of at least 1500 m²/g.

3. (Currently Amended) A wellbore fluid according to claims 1 or 2 wherein the nonionic

emulsifier is selected from the group eomprising consisting of: diethanolamides based on fatty

acids of more than 12 carbon atoms, alkoxylated fatty alcohols, alkoxylated alkylphenols, and

ethylene oxide propylene oxide block polymers.

4. (Currently Amended) A wellbore fluid according to claim 1 or 2 wherein the anionic

surfactant is selected from the group comprising consisting of: alkane sulphonates, alpha olefin

sulphonates, alkyl arene sulphonates, polyolefin sulphonates and acyl taurates, all characterised

by the carbon number of the hydrophobic moiety being at least about 12, and by the counter-ion

(cation) being any of alkali metal, ammonium, or hydrogen ions.



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5. (Currently Amended) A wellbore fluid according to claim 1 or 2 wherein the anionic surfactant is selected from the group comprising consisting of: fatty acids of 12 or more carbon atoms, phosphate esters of ethoxylated alcohols of 12 or more carbon atoms, phosphate esters of ethoxylated alkyl phenols of 14 or more carbon atoms, and alkyl aminomethylene phosphonates wherein the alkylamine precursor contains 12 or more carbon atoms, all characterised by the counter-ion (cation) being any of alkali metal ion, ammonium, or hydrogen ions.

- 6. (Previously Presented) A wellbore fluid according to claims 1 or 2 in which the total dose of emulsifier(s) is in the range 0.5% to 10% by weight.
- 7. (Previously Presented) A wellbore fluid according to claims 1 or 2 further comprising a material capable of precipitating or complexing polyvalent metal cations.
- 8. (Currently Amended) A wellbore fluid according to Claim [[8]] wherein the emulsified brine phase contains dissolved anions which will form insoluble precipitates with the ions of calcium, magnesium or iron cations.
- 9. (Currently Amended) A wellbore fluid according to Claim 8 wherein the complexing agent is selected from the group eomprising consisting of: the alkali metal or ammonium salts, or the free acids, of citric acid, gluconic acid, glucoheptanoic acid, ascorbic acid, erythorbic acid, nitrolotriacetic acid, ethylene diamine tetraacetic acid, diethylenetriamine pentaacetic acid, hydroxyethylidene diphosphonic acid, nitrolotrismethylenephosphonic acid, aminomethylene phosphonates based on ethylene diamine or diethylene triamine or higher ethyleneamines, and polyphosphates such as tetrasodium pyrophosphate.
- 10. (Previously Presented) A method of drilling or completing a well wherein the wellbore fluid used is as in Claim 1 or 2.

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11. (Previously Presented) A method of providing enhanced information from electrical logging tools, measurement-while-drilling (MWD), logging-while-drilling (LWD), geosteering and the like wherein the efficiency is enhanced by the improved electrical conductivity of any of the wellbore fluids as in Claims 1 or 2.

- 12. (Cancelled)
- 13. (New) A fluid of claim 8, wherein the dissolved anions include phosphate, carbonate, or silicate.

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